William S. Antisdale Memorial
State Reward Bridge
(Henry Street Bridge)
Spans Mona Lake at Henry Street
Norton Shores
Muskegon County
Michigan

HAER No. MI-26

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION, NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

HAER
MICH,
6-NDSHD,
1-

HISTORIC AMERICAN ENGINEERING RECORD
WILLIAM S. ANTISDALE MEMORIAL STATE REWARD BRIDGE
(HENRY STREET BRIDGE)

HAER No. MI-26

Location: Spanning the Mona Lake at Henry Street in the City of Norton Shores, Muskegon County, Michigan.
UTM: 16.559843.4780680
QUAD: West Muskegan

Date of Construction: 1932

Present Owner: City of Norton Shores
480 Henry Street
Norton Shores, Michigan 49441

Present Use: Vehicular, bicycle and pedestrian bridge. A 13 faat vertical clearance accommodates recreational baating traffic.

Significance: This bridge has been classified a significant bridge from the Engineering and Transportation standpoint.

Project Infarmation: The bridge is scheduled far reconstructian because of the deteriorated condition af the abutments and the deck. The vertical alignment has also been redesigned to bring it into compliance with today's geometric standards, and to provide safe sight distances. The bridge will be widened to accommodate increased vehicular traffic.

Ayres, Lewis, Norris and May, Inc. of Ann Arbor, Michigan has prepared Contract Documents for the reconstructian. ALNM is also responsible for the HAER documentation of the structure.

HISTORICAL EVENTS
OF THE
WILLIAM S. ANTISDALE MEMORIAL STATE REWARD BRIDGE
(HENRY STREET BRIDGE)

The existing bridge was the third in the series of bridges built over the Mona Lake crossing at Henry Street. The first bridge was called a "float bridge" which was essentially a wooden structure designed to carry horse drawn wagons and pedestrians. The central portion of the bridge was the actual floating section. The "float" bridge was constructed in 1881 by a group of fruit farmers.

The float bridge was replaced by a steel bridge in the year 1909. The steel bridge consisted of a series of steel girder spans consisting of nine inch (9") "I" beams and nine inch (9") channels with flat slab reinforced concrete flooring and bituminous wearing surface. The substructure consisted of structural steel banks supported on timber pile bents. The roadway width was eighteen feet (18'). There was a fifty-seven foot (57') plate grider swing span near the north end of the structure, with a four inch (4") timber plank floor on five inch (5") "I" beam stringers with fifteen inch (15") "I" floor beams. The overall length of this structure was one-thousand eight-five feet (1085'). There were two concrete abutments, three concrete piers and a pivot pier consisting of an eighteen foot (18') diameter steel shell filled with concrete. Five of the spans had collapsed before the construction of the new bridge was undertaken. The entire bridge, with the exception of abutments were removed for the construction of the present bridge.

The steel bridge wos replaced by the existing bridge in 1934. The jurisdiction of the crossing was within the political boundaries of the Township of Norton. The Michigan Department of Highways was charged with the design ond construction of major bridges at the time. The area surrounding the bridge was rural at the time of construction of the bridge.

The Henry Street Bridge was designed in 1931 by the Michigan State Highway Department. The general contractor was H.E. Culbertson Company of Muskegon Heights, Michigan in 1932.

The bridge is nine-hundred one feet (901') in length and has ten (10) spans, each seventy

feet (70') long. There are two (2) abutments and nine (9) piers. The abutments and piers are of concrete construction and the steel girders spanning the piers support the deck, sidewalk and the bridge railing. The abutments are af cancrete box design and each is supported by a tatal of sixty (60) wooden piles.

The bridge has been classified as a historic bridge because of its significance from the Engineering and Transportation standpoint. It is noteworthy in terms of size and design innavations. With nineteen (19) spans and overall length of nine-hundred one feet (901'), it is among the largest ten percent (10%) of bridges of this design in the State. Because of the unstable nature of the lake bed it rests on, this bridge used several design innovations. Concrete piers consist af four, eight foot (8') diameter corrugated pipe caissons. Caissons extend from the lake bed up to the water level and reinforced concrete bracings connect the caissons to form an individual pier. Each af the caissons are supported by ten (10) piles which are driven through about thirty feet (30') of muck and an additional thirty-five feet (35') of sand.

The bridge railing has an architecturally pleasing oppearance, and the sidewalk carries conduits to carry electrical cables for the lighting of the bridge.

This bridge superstructure steadily deteriorated to a point where the bridge was posted for load limits. Both abutments also exhibited serious structural integrity problems.

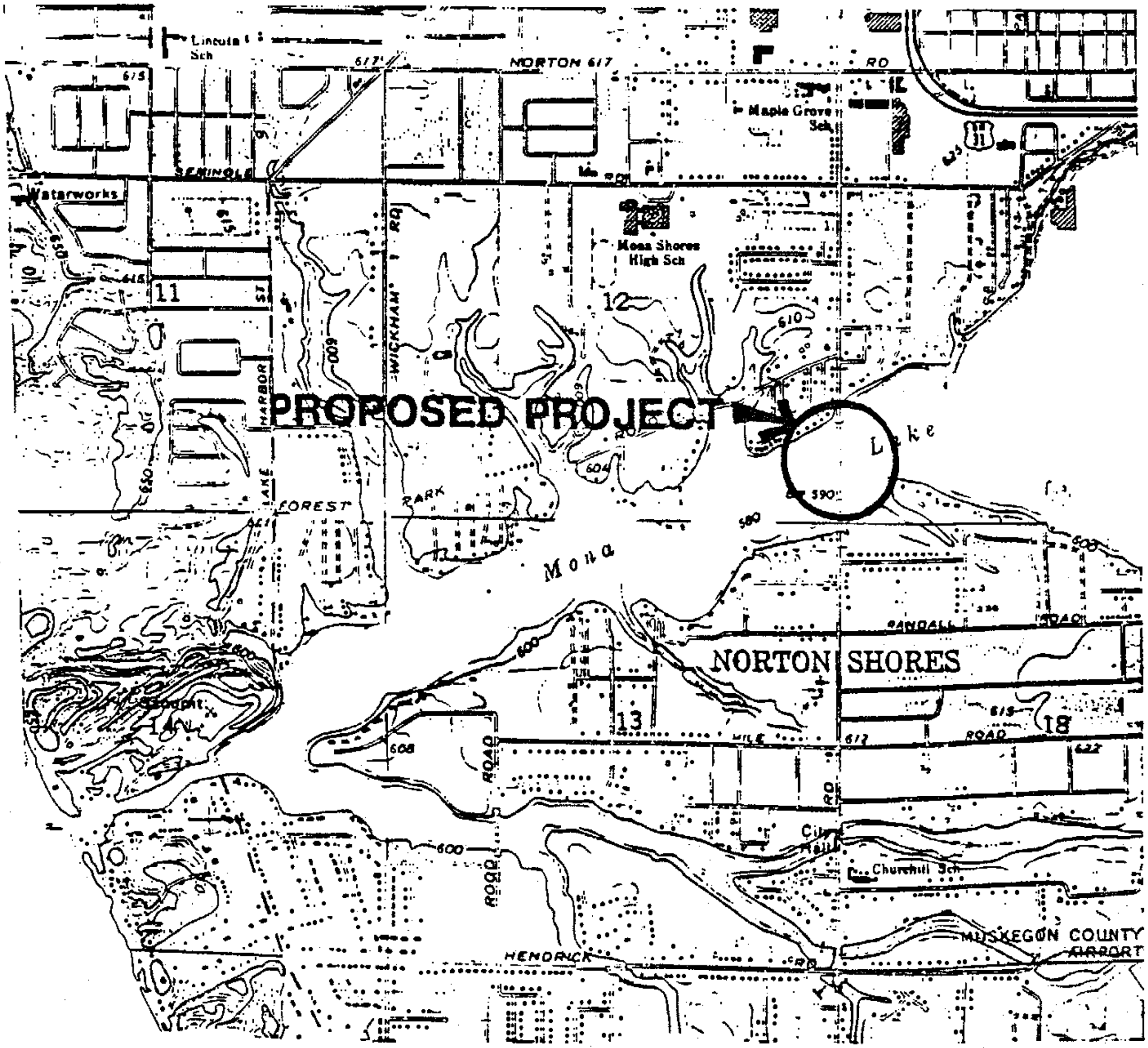
In 1987, the bridge became eligible for federal funding under U.S. Federal Highway Administration's critical bridge program. The plans for the reconstruction were prepared in 1988 by Ayres, Lewis, Norris & May, Inc. of Ann Arbor, Michigan and bids were received on May 11, 1988 for the reconstruction of this bridge. The plans call for replacement of the superstructure and abutments. The new design also calls for four additianal caissons for each pier and incorporates the existing substructure for wider superstructure. Including forty eight feet (48') wide roadway and six feet (6') wide walkway on either side, the overall width of the new bridge will be 63', 4-1/2 ". The lowest bid of $6,298,414 was submitted by a joint venture of Hardman Construction, Inc. of Ludington, Michigan and Walter Toebe Construction of Wixom, Michigan. The project is scheduled for completion in July, 1989.

BIBLIOGRAPHY

1. Michigan State Highway Department Construction Drawings B1 of G1-13-23

2. Ayres, Lewis, Norris & May, Inc. - Environmental Assessment and Section 4(F) Evaluation William S. Antisdole Memorial State Reword Bridge - April 1988.

3. City of Norton Shores, Michigan


Lincoln Sch
NORTON 617
RD
Maple Grove Sch
SEMINOLE
Waterworks
Mona Shores High Sch
11
12
WICKHAM RD
HARBOR
PROPOSED PROJECT
Lake
FOREST
PARK
Mona
NORTON SHORES
13
18
ROAD
Churchill Sch
HENDRICK
MUSKEGON COUNTY AIRPORT